

Maximizing the Value of a Compliance Sampling Inspection



Ashley Auerbach

South Carolina Department of Health and Environmental Control

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Background Information

The National Pollutant Discharge Elimination System (NPDES) program was created in 1972 by the Clean Water Act (CWA) as an effort to reduce water pollution. The NPDES program required point source discharges into Waters of the United States to start being regulated by being covered under a NPDES Permit.

A NPDES Permit allows the permittee to discharge a specified amount of a pollutant into a receiving body of water under certain conditions. There are two types of NPDES Permits; an individual permit and a general permit. Individual permits are designed specifically for the permittee depending on their specific types of activities and discharges. General permits cover a group of dischargers that have similar activities and characteristics.

Under the CWA, the Environmental Protection Agency (EPA) is able to delegate authority to state, tribal and territorial governments allowing them to manage the NPDES program locally. States are able to perform the permitting, compliance and enforcement tasks necessary to make the program successful. Currently 46 states and one territory are authorized by EPA to implement this program.

In 1975, EPA authorized the state of South Carolina to administer the NPDES program. The South Carolina Department of Health and Environmental Control (DHEC) is responsible for permitting, compliance, monitoring, and enforcement actions. Specifically, the Water Facilities Permitting Division is responsible for issuing NPDES permits for industrial facilities, federal facilities, municipalities, state owned facilities, commercial facilities and private non-industrial systems. Wastewater facilities are

monitored by the regional offices for compliance with their NPDES permits.

Enforcement actions are used by the Department when necessary to attain compliance with permit, water quality standards and State and Federal law and regulations.¹

The EPA developed a Compliance Monitoring Strategy (CMS) that has defined compliance monitoring goals for the NPDES program. EPA authorizes states to implement their own NPDES programs as long as they are following the recommendations set forth in the CMS. The CMS recommends minimum frequencies for compliance monitoring activities that help develop a strong compliance monitoring program. States must also meet the requirements listed in 40 CFR 123.26 when implementing their own program. In part, that regulation requires a state to maintain an inspection program for all facilities and activities that are subject to regulations. These inspections are designed to determine compliance with permit conditions, verify the accuracy of information submitted and verify the accuracy of sampling and monitoring.² Two of the most common types of inspections conducted for NPDES permitted facilities in EPA Region 4 are Compliance Sampling Inspections (CSI) and Compliance Evaluation Inspections (CEI).

Problem Statement

This project was chosen because a Compliance Sampling Inspection (CSI) takes a significant amount of time to conduct, but when non-compliant results are obtained, the results essentially have no value. Our inspectors spend 2-3 days conducting a CSI by setting up sampling equipment, collecting compliance samples and

¹ <http://www.scdhec.gov/Environment/WaterQuality/NPDES/Overview/>

² <https://www.epa.gov/npdes/about-npdes>

reviewing compliance records at selected NPDES permitted facilities. The analytical results obtained from the CSI are combined with a written report and sent to the permittee several months later. If a facility exceeds the permit limits of a parameter during the sampling event, they are given an overall rating of non-compliance for the CSI. However, that rating doesn't have much value because the sampling results are just a snapshot of what is being discharged from the facility during that specific sampling event, so enforcement will not use that information to give the facility a Notice of Violation or pursue any other enforcement action.

The goal of this project aligns with agency goals because EPA's CMS recommends using a CSI inspection as a comprehensive inspection, but currently the results of those inspections are not beneficial in enforcement actions. To follow EPA's guidelines, we need to re-evaluate how to use this valuable type of inspection to assist us with ensuring that facilities are truly meeting the effluent limits required by their permit and submitting accurate information.

Data Collection

To determine what procedure changes need to be made to South Carolina's NPDES Compliance Inspection Program, it is helpful to look at how many other states in EPA Region 4 are doing Compliance Sampling Inspections. States that have been given authority to manage their own NPDES programs receive an oversight audit by EPA approximately once every four (4) years. I requested for EPA to compile data that is provided to them during the oversight audits of the eight (8) states in EPA Region 4. The table shown in Appendix A is not a complete listing of every district or regional branch from every state because EPA gathered data for only 3 years. However, it is still

enough information to show if other states are conducting CSI's. The data provided by EPA only focuses on CEI and CSI inspections since these are the two types of inspections that are being considered in this project.

A CEI is defined as an on-site non sampling inspection of a NPDES direct discharger designed to verify permittee compliance with applicable permit self-monitoring requirements, effluent limits, and compliance schedules. Inspectors must review records, make visual observations and evaluate treatment facilities, laboratories, effluents and receiving waters.

A CSI is defined as an inspection of a NPDES discharger to include the same objectives and tasks as a CEI. In addition, inspectors must take representative samples. Inspectors then verify the accuracy of the permittee's self-monitoring program and reports through chemical and bacteriological analysis; evaluate compliance with discharge limitations; determine the quantity and quality of effluents; and provide evidence for enforcement proceedings where appropriate.³

Data Analysis

The data shows that most of the states in EPA Region 4 are conducting very few CSI's. Looking at the Total NPDES Municipal and Industrial permitted facilities listed in the chart in Appendix A, South Carolina has a fairly low number of permitted facilities compared to other states, yet the number of CSI's completed each year is relatively high.

³ <https://www.epa.gov/sites/production/files/2013-09/documents/npdescms.pdf>

Based on the data collected, there are three (3) potential options for changes to SCDHEC's CSI program:

1. Stop Conducting CSI inspections unless there is cause to believe that a facility is falsely submitting data or there appears to be an environmental impact to the receiving stream. EPA only requires a comprehensive inspection once every other year for major facilities and once every five (5) years for minor facilities. A comprehensive inspection includes both a CEI and CSI among other types of inspections that we do not conduct. EPA does not actually require that we perform a certain percentage of CSI's each year; only a total percentage of comprehensive inspections with the states given the choice of the type of inspection they wish to conduct. As seen in the chart in Appendix A, there are several states in EPA Region 4 that are not conducting CSI inspections annually.

This is not a likely choice because we need to remain proficient in conducting CSI's in the event that they are needed for enforcement actions. Setting up sampling equipment is very technical and requires practice to be accurate and competent. The sample collection process needs to be legally defensible and lack of practice may lead to poor collection and set-up techniques. Additionally, routinely conducting CSI's keeps permittee's more honest about the information that they collect and submit because they could be sampled by DHEC at any time. During discussions with EPA about the data they compiled, they did not like to see the low number of CSI's that are typically performed in other states because they consider this to be a valuable inspection type.

2. After receiving non-compliant sampling results, conduct another CSI to obtain additional sampling results to determine if the facility is back in compliance or is still in non-compliance.

While the data obtained from another CSI would be beneficial to show repeat non-compliance, this choice is too expensive and the regional resources are too limited to invest time to conduct another CSI. The chart below shows the cost of man hours for conducting a single CSI.

Inspectors often travel to other regions to collect samples, so this is labor and time intensive. The amount of money spent on man-hours depends on if there is travel to another region and if that person is an entry level inspector or if they are a more experienced inspector.

	Time Spent (hours)	Local Facility		Time Spent (hours)	Facility in another region	
		EHM I (16.41/hr)	EHM II (20.50/hr)		EHM I (16.41/hr)	EHM II (20.50/hr)
Prep Time	3	\$49.23	\$61.50	3	\$49.23	\$61.50
Day 1	5	\$82.05	\$102.50	7	\$114.84	\$143.50
Day 2	5	\$82.05	\$102.50	7	\$114.84	\$143.50
Day 3	5	\$82.05	\$102.50	7	\$114.84	\$143.50
Paperwork Review	3	\$49.23	\$61.50	3	\$49.23	\$61.50
Total Cost	21	\$344.61	\$430.50	27	\$443.07	\$553.50

3. Conduct a follow-up CEI inspection after receiving the sampling results that indicate a facility will receive a rating of non-compliance. During the follow-up CEI, the inspector would look at the facility's sampling data that was collected during the DHEC CSI and determine if they also recorded non-compliant readings during that time.

Additional records would be reviewed from the date of the first CSI to the present time to note the current condition of the plant and note any discrepancies and deficiencies.

This is the best option to be used to strengthen the Compliance Sampling Program because it allows for a follow-up action at the facility that will provide additional information for the results that were obtained during the CSI. This follow-up inspection would only take approximately 3 hours and would only be used when a facility received a rating of non-compliance due to sampling results. EPA recognizes a follow-up inspection as an inspection option and gives states credit for using this type of inspection when necessary.

Implementation Plan

To begin to implement the procedure changes needed to strengthen the CSI program, regional inspection staff will need to be informed of the changes. These changes will be announced and dictated by the Bureau of Water. The procedure changes can begin immediately and there is no additional start-up cost or additional resources needed to implement this because all regional inspectors are trained to conduct CEI inspections.

There are some potential obstacles that will slow down the turnaround time to conduct a follow-up inspection in a timely manner. First, the lab is routinely slow in analyzing samples that have a long hold time (28 days). They receive a lot of samples from across the state, so samples with long hold times are not analyzed quickly. Once the analyses are complete, the results are often added to stacks of data that need to be entered into the data system, so that adds an additional delay. This obstacle is

completely controlled by the lab and is not likely to change. Another obstacle is the time that it takes for the Central Office compliance staff to complete a report to send out to the regional staff and the permittee. The Central Office compliance staff cover the entire state and are slow to produce reports because of the delay from the lab, from incomplete field inspector reports and a large volume of reports in general to process. This obstacle may be able to be reduced by having the Central Office compliance staff quickly compare the lab results with the permit requirements to determine non-compliant sampling results without generating a formal report. If the results indicate non-compliant sampling results, they can then alert the regional staff that a follow-up CEI needs to be conducted and then continue with the formal report when time allows. Communication between the Central Office compliance staff and the regional inspectors is imperative to make this new procedure timely and effective. Once a non-compliant rating is determined, the regional staff should respond by conducting a CEI within 15 business days. This procedure should be added to the Compliance Inspection Guide for inspectors.

Evaluation of the changes

The changes to the Compliance Sampling Program will need to be monitored for at least a year to see if adding a follow-up CEI after a non-compliant CSI is strengthening the program by finding additional data to support the initial non-compliance. This can be tracked by the Central Office compliance staff based on the findings of the follow-up CEI inspection since they receive all of the CSI and CEI reports from across the state. Each regional office can also maintain their own data and

contribute their opinions on how this approach is working and offer suggestions if revisions to the plan are needed.

Summary

The purpose of this project was to evaluate options to strengthen DHEC's Compliance Sampling Inspection program. EPA considers CSI's to be valuable tools, if used properly, to determine compliance. It has been determined that a follow-up CEI inspection will be conducted after a non-compliant CSI. This plan has the best potential to strengthen the CSI program because it provides additional valuable information to support the initial rating with the fewest amount of additional man hours. One of DHEC's core values is the pursuit of excellence, so we are always striving to improve our processes in our commitment to the highest achievable standards.

Appendix A

STATE DISTRICT OFFICE NPDES INSPECTIONS - CURRENT AS OF 12/20/17					
STATE	DISTRICT OFFICE - LOCATION	FISCAL YEAR	TOTAL NPDES MUNICIPAL AND INDUSTRIAL PERMITTED FACILITIES*	TOTAL NPDES MUNICIPAL AND INDUSTRIAL INSPECTIONS COMPLETED (CEIs and CSIs)**	TOTAL COMPLIANCE SAMPLING INSPECTIONS (CSIs) COMPLETED
Alabama	Birmingham Field Office	2015	256	87	10
Alabama	Central Field Office - Mobile	2015	190	35	10
Florida	Central District Office - Orlando	2013	44	46	3
Florida	Southeast District Office - West Palm Beach	2014	71	24	0
Florida	South District Office - Fort Myers	2015	78	11	2
Florida	Northeast District Office - Jacksonville	2015	186	42	5
Georgia	West Central District Office - Macon	2016	71	24	***
Georgia	Northeast District Office - Athens	2016	57	23	***
Georgia	Coastal District Office - Brunswick	2016	100	30	***
Georgia	Facilities Monitoring Unit and Industrial and Municipal Compliance Unit - Atlanta	2016	243	79	17
Kentucky	Paducah Regional Office - Paducah	2015	116	35	6
Kentucky	Morehead Field Office - Morehead	2015	126	89	10
Kentucky	Bowling Green Regional Office - Bowling Green	2017	34	17	4
Kentucky	London Regional Office - London	2017	60	35	6
Kentucky	Hazard Regional Office - Hazard	2017	44	25	6
Mississippi	Environmental Compliance and Enforcement Division - Jackson	2014		150	2 CMIs****
Mississippi	South Regional Office - Biloxi	2016	286	40 CMIs****	40 CMIs****
Mississippi	Central Regional Office - Pearl	2016	632	****	****
North Carolina	Mooreville Regional Office - Mooreville	2015	66	31	2
North Carolina	Raleigh Regional Office - Washington	2014	186	74	0
North Carolina	Wilmington Regional Office - Wilmington	2014	56	25	0
North Carolina	Asheville Regional Office - Asheville	2014	73	41	0
South Carolina	Aiken Regional Office - Aiken	2015	32	17	3
South Carolina	Lowcountry EQC Office - Beaufort	2015	52	28	7
South Carolina	Pee Dee EQC Office - Myrtle Beach	2015	40	22	6
South Carolina	Upstate EA Office - Greenwood	2016	20	12	3
Tennessee	Jackson Field Office - Jackson	2015	209	46	1
Tennessee	Nashville Field Office - Nashville	2015	101	15	0
Tennessee	Columbia Field Office - Columbia	2015	53	28	4
Tennessee	Memphis Field Office - Memphis	2016	64	22	0
*THIS REPRESENTS NPDES PERMITTED MUNICIPAL AND INDUSTRIAL FACILITIES. THIS DOES NOT INCLUDE: MINING, SID, GENERAL INDUSTRIAL, NON-MUNICIPAL, NON-INDUSTRIAL, PRETREATMENT, STORMWATER, CONSTRUCTION, COAL, MINOR RESIDENTIAL, OR 'OTHER' GENERAL PERMITS.					
**THIS REPRESENTS TOTAL NPDES MUNICIPAL AND INDUSTRIAL COMPLIANCE EVALUATION INSPECTIONS (CEIs) AND COMPLIANCE SAMPLING INSPECTIONS (CSIs) CONDUCTED. CEI + CSI = TOTAL NUMBER IN COLUMN. THIS DOES NOT REPRESENT: STORMWATER INSPECTIONS, GENERAL SITE INSPECTIONS, WATER QUALITY, COMPLIANCE BIOMONITORING INSPECTIONS, TECHNICAL ASSISTANCE, COMPLAINTS, MINING INSPECTIONS, AFO INSPECTIONS, UST, SANITARY SEWER, CONCRETE, WTP, CONSTRUCTION, AQUATIC RESOURCES ALTERATIONS, DAMS, FOLLOW-UP, SITE VISITS, NON-NPDES INSPECTIONS, PRETREATMENT INSPECTIONS, SIUs, RECONNAISSANCE, NON-MUNICIPAL/NON-INDUSTRIAL INSPECTIONS, GENERAL INSPECTIONS, COAL INSPECTIONS, MINOR RESIDENTIAL, OR 'OTHER' GENERAL INSPECTIONS.					
***CSIs are conducted by the GA EPD Watershed Protection Branch in Atlanta, GA.					
****CEIs and CSIs are conducted by the MDEQ Jackson Office. MDEQ Regional Offices conduct Compliance Monitoring Inspections (CMIs), which consist of sampling and flow measurement.					